

WHAT IS CLAIMED IS:

1. An apparatus for recovering energy from a compressed gas, comprising:
a piston-cylinder assembly that is mounted for movement in a body of water between a first lower position and a second upper position, said piston-cylinder assembly comprising;
a cylinder positioned in said tank; and
a piston disposed in said cylinder and cooperating with said cylinder so as to define an expandable chamber therewith;
a pontoon disposed in said tank to receive the piston-cylinder assembly;
pressure coupling means, positioned proximate to said lower position, for introducing a compressed gas into said expandable chamber; and
energy recovery means, connected to said piston-cylinder assembly, for recovering energy from said piston-cylinder assembly as said piston-cylinder assembly floats from said first position to said second position, and wherein said energy recovery means is further constructed and arranged to recover additional energy from said piston-cylinder assembly as said piston-cylinder assembly returns by sinking to said first position.
2. An apparatus according to claim 1, further comprising a spring assist cylinder.
3. An apparatus according to claim 1, further comprising a pontoon stop.
4. An apparatus according to claim 1, wherein the pontoon is filled with compressed gas.
5. An apparatus according to claim 1, further comprising a valve for releasing said gas from said expandable chamber when said piston-cylinder assembly is close to said second position, whereby said piston-cylinder assembly is enabled to sink downwardly to return to said first position.
6. An apparatus according to claim 1, further comprising guide means for guiding said piston-cylinder assembly as it travels between said first and second positions.

7. An apparatus according to claim 1, further comprising lock-down means for holding said piston-cylinder assembly near said first position until a predetermined amount of compressed gas is introduced into said expandable chamber.

8. An apparatus according to claim 1, wherein said energy recovery means further comprises an electrical generator.

9. An apparatus for recovering energy from a compressed gas, comprising:
a piston-cylinder assembly that is mounted for movement in a body of water between a first lower position and a second upper position, said piston-cylinder assembly comprising a cylinder positioned in said tank; and a piston disposed in said cylinder and cooperating with said cylinder so as to define an expandable chamber therewith and at least one pontoon disposed in said tank to receive the piston-cylinder assembly;

pressure coupling means, positioned proximate to said lower position, for introducing a compressed gas into said expandable chamber; and

energy recovery means, connected to said piston-cylinder assembly, for recovering energy from said piston-cylinder assembly as said piston-cylinder assembly floats from said first position to said second position, and wherein said energy recovery means comprises at least one endless chain mounted for travel in an endless loop between a first sprocket near said first position and a second sprocket near said second position, and means on said piston-cylinder assembly for engaging said chain.

10. An apparatus according to claim 9, further comprising a spring assist cylinder.

11. An apparatus according to claim 9, further comprising a pontoon stops.

12. An apparatus according to claim 9, wherein the pontoon is filled with compressed gas.

13. An apparatus according to claim 9, wherein said energy recovery means further

comprises an electrical generator coupled to said second sprocket.

14. A process for extracting energy from a compressed gas, comprising steps of:
 - (a) submerging a piston-cylinder assembly to a first, lower position wherein the piston-cylinder assembly rests on one or more pontoons;
 - (b) holding said piston-cylinder assembly in said first, lower position while introducing a predetermined amount of compressed gas into said piston-cylinder assembly;
 - (c) releasing the piston-cylinder assembly;
 - (d) mechanically engaging said piston-cylinder assembly with a first endless chain as said piston-cylinder assembly rises toward a second, upper position, thereby causing said first endless chain to move;
 - (e) recovering energy from said first endless chain
 - (f) mechanically engaging said piston-cylinder assembly with a second endless chain as said piston-cylinder assembly sinks toward the first, lower position, thereby causing the second endless chain to move; and
 - (g) recovering additional energy from the second endless chain.position to said second position.
15. A process according to claim 14, wherein one or more spring assist cylinders engage the pontoons.
16. A process according to claim 14, wherein one or more pontoon stops engage the pontoons.
17. A process according to claim 14, further comprising a step of converting the energy recovered in step (e) into electricity by means of an electrical generator.
18. A process according to claim 14, wherein steps (a)-(d) are performed within a tank.
19. A process according to claim 14, wherein steps (a)-(d) are performed within a body of

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water.